guish between seconds of arc and of time. Although an inexcusable blunder, yet it serves to emphasize anew the intolerable nuisance of this double unit, and makes us wish for the speedy coming of the day when all kinds of circular measure shall have a common convenient unit; when every watch and clock face, every graduated circle, and every logarithm-table of the trigonometric functions, shall be divided into decimals of the circumference.

Gould's Zone catalogue.—The Argentine government have presented the stereotype plates of this valuable catalogue to the Astronomische gesellschaft, with authority to use them for a new edition whenever it is needed.

NOTES AND NEWS.

THE National academy of sciences will hold its autumn session in the capitol at Albany, beginning November 10, at eleven o'clock. The session will probably continue three or four days.

— The Lowell free courses in the Teachers' school of science, under the auspices of the Boston society of natural history, will begin on November 7, with a series of lectures by Prof. A. Hyatt on the structure and habits of typical animals.

— Despatches from Paris, under date of Oct. 27, announce that at the meeting of the Academy of sciences, held that day, M. Pasteur furnished proof of his theory that inoculation was easily practicable, and had been successful in preventing hydrophobia. Dr. Vulpian gave additional proofs confirming the deductions of M. Pasteur.

— Mr. F. W. Putnam has been chosen Peabody professor of American archæology and ethnology under the Peabody trust at Harvard university.

— The October number of the Harvard university bulletin contains continuations of the very useful index to the maps in the London geographical society's publications, and a further instalment of the bibliography of the Kohl collection of early American maps.

— *Lippincott's magazine* for November contains a well-written article on the Peabody museum of archæology at Cambridge, by Ernest Ingersoll.

— Henshaw's list of the Coleoptera of America north of Mexico, just issued, includes 9,238 species. Crotch's check-list, published in 1874, contained 7,450 species. Previous to these came the lists published by Le Conte, and in 1880 Austin published a supplement to Crotch, bringing the number of nominal species up to 9,704, which recent studies have greatly reduced.

— The Johns Hopkins university *circular* for October is entirely devoted to the summer work of the Chesapeake zoölogical laboratory at Beaufort, N. C., and contains interesting summaries of investigations upon the embryology of a variety of invertebrate marine animals, and on the physiology of some of the lower vertebrates. An interesting 'Note on inheritance,' by the director, Dr. Brooks, is added, containing a rejoinder to some criticisms that have appeared on the author's work on 'Heredity,' together with a short letter from Fritz Müller, discussing the question of heredity among the Brazilian species of Melipona.

LONDON LETTER.

THE prospects of the Marine biological association are now beginning to shape themselves somewhat definitely. A suitable site for a laboratory has been obtained at Plymouth, and the building committee, which consists of the officers, together with Mr. John Evans and Mr. Spence Bate, will meet shortly to make a final decision upon the plans which they will recommend to the council. The subscription list has not received many additions of late; but it is hoped that further contributions may be obtained, when the public can form a better idea of the nature of the building and its uses than is the case at present. A grant of money will probably be given by the treasury toward the expenses of the station, provided that it is brought into relation with the Scotch fisheries board, the duties of the English fish inspectors being limited to the salmon fishery only.

A considerable amount of criticism has been excited in biological circles by the action of the government in abolishing the professorship of natural history at the Normal school of science, South Kensington. The chair has hitherto been filled by Professor Huxley, who has lately retired in consequence of ill health; and as the salary attached to it is greater than that of any similar post in England, it has always been regarded by the younger school of zoölogists as the highest object of their ambition. Now, however, this will be no longer possible. English zoölogical teachers are left without an official head, and the flow of promotion has received a sudden check. It had been generally thought that the chair would be given to Professor E. Ray Lankester, who is well known not only as a distinguished investigator, but also as a teacher of no ordinary power. His claims, however, have been altogether passed over. The professorship has been abolished, and a

lectureship, at a diminished salary, has been established in its place. This is filled by Professor Huxley's former assistant, who has long had entire charge of the laboratory teaching, and has just brought out an admirable atlas of elementary biology. It was certainly desirable that his merits should receive the recognition which they deserved. But this might surely have been effected without the infliction of a blow which will be felt in almost every zoölogical laboratory in the country.

The Prince of Wales has fixed Monday, November 9, for the official closing of the International inventions exhibition. Upwards of three and a quarter million visitors have thus far been admitted. A valuable series of reports, by experts, on the various classes of exhibits, is appearing in the *Journal of the Society of arts*, which has been from their commencement, the official record of these exhibitions. A scheme is on foot for forming, from this exhibition, a floating exhibition on board a large steamer, which is to visit the chief ports; and in this way the benefits of the exhibition may be extended.

Among the various agencies for creating an interest in the methods and results of scientific inquiry, on the part of artisans and persons of very limited means, the operations of the Gilchrist educational trust deserve notice. The founder, Dr. Gilchrist, a Scotch surgeon, left on an exceedingly open trust, for the benefit and advancement of scientific learning in any part of the world, the income of certain investments, which have since become very valuable. One of these was a piece of land now in Sydney, Australia, for which he paid $90, which was sold a few years ago by the trustees for $360,000. Part of the trust income is expended in scholarships, chiefly granted to students in Canada, Australia, India, etc., to enable them to study in England. Another portion is devoted to the delivery of courses of scientific lectures in English and Scotch towns, under local management, but subject to the condition that the charge for admission shall not exceed two cents. These lectures are specially addressed to large popular audiences, often comprising 2,000 persons or more. Ten such courses are now running in various towns, and the lecturers engaged in them are Dr. R. S. Ball (Royal astronomer for Ireland), Dr. Dallinger, Prof. W. C. Williamson, Dr. Andrew Wilson, and Mr. Wm. Lant Carpenter. A course usually consists of six lectures, one half on physical subjects, the other upon biological, and their aim is avowedly to awaken an interest in science. Usually the lecture halls are crowded to their utmost capacity. W.

London, October 13.

WASHINGTON LETTER.

THE improvements on the arrangement for protecting the Washington monument from damage by lightning are now being made, and will probably be completed within a week. The disturbed portion of stone-work has been very neatly drawn back into its place, and secured by bolts from within. The changes which are being made, with the hope of avoiding all possible injury in the future, are essentially as follows: Around the lower part of the aluminium pyramid which terminates the shaft has been fitted a sort of collar, from which project eight pointed metallic rods, each about three inches in length. To the corners of this collar four copper rods, about one-half an inch in diameter, are secured, extending down the edges of the fifty-five-foot pyramidal apex. These four rods are joined together at a number of points along their length by horizontal strips of metal, each having a cross-section area nearly as great as that of the half-inch rod, but of different form, so as to fit closely into openings along the junctions of the various layers of masonry. All are securely joined to the corner or edge rods; and along both horizontal and edge rods metallic points, similar to those surrounding the base of the aluminium apex, will project at right angles to the rods, and at distances of four or five feet from each other. It will be seen that the great terminal pyramid will thus be covered with a sort of cage of metal rods, from which will project a large number of small metallic points. All of the metal thus placed upon the surface has been carefully plated with gold to prevent discoloration of the stone through the action of the weather on the copper.

The connection of this external cage with the internal conductor seems to be all that could be desired. To begin with, from the base of the small aluminium pyramid a copper rod or bolt, one and a half inches in diameter, extends to the base of the capstone, by means of which it is secured to the latter. From the extremity of this rod four rods of copper, each having a diameter of three-fourths of an inch, proceed downward, and, separating at a distance of a few feet from their upper ends, are led to the four middle piers of the iron structure which carries the elevator and the stairway. This structure extends through the whole height of the monument up to some distance beyond the five-hundred-foot level. It consists, in the main, of eight wrought-iron columns, four being six and one-half inches in diameter, and four seven and one-half, and all tied together through iron braces and stays. In addition to the electrical connection of the exterior cage through the aluminium apex, as above described, independent